

Overview

Mexicali, Mexico on the left and Calexico, California on the right

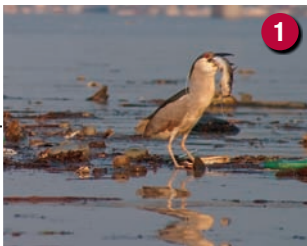
The borderland between the United States and Mexico is a dynamic region in which cultures and political systems collide and environmental issues cross political boundaries. This unit examines relations between the United States and Mexico by looking at key economic, political, and environmental issues.

The unit makes this extremely broad and complex topic accessible to students by focusing on the border region, where examples of these issues abound. The border region serves as the focus of study: it involves many environmental issues and stakeholders, and clearly shows the interconnectedness among social, political, economic, and

environmental factors. Although this unit focuses on relations between the United States and Mexico in the twentieth century, students also examine current political, economic, and environmental issues that exist throughout the border region.

Students study various environmental problems, consider the regional influences of population

At a Glance



The Tijuana River: A Shared Resource

Brainstorm issues influencing U.S.-Mexico relations as related to the Tijuana River watershed.



Life on the Border

Analyze environmental problems in the borderlands and discuss their influence on U.S.-Mexico relations.



Population Pressures

Map population data and analyze infrastructure and economic opportunities in cities along the border.



California Content Standard

- 11.9.** Students analyze U.S. foreign policy since World War II.
- 11.9.7.** Examine relations between the United States and Mexico in the twentieth century, including key economic, political, immigration, and environmental issues.

growth, and analyze how economic and environmental issues influence the relationship between the United States and Mexico. In making decisions about natural resource use and management, both countries consider how such decisions influence the variety of people in the region, the diverse economies, and the complex social systems that are present in the area. Students also evaluate **treaties** and negotiations between the two countries that address these issues.

The lessons in the unit move students from identifying environmental factors and describing the different ways the stakeholders balance decisions, to analyzing the environmental treaties and agreements between the United States and Mexico. Students

California Environmental Principle V

Decisions affecting resources and natural systems are based on a wide range of considerations and decision-making processes. As a basis for understanding this principle:

Concept A: Students need to know the spectrum of what is considered in making decisions about resources and natural systems and how those factors influence decisions.

assess how population growth and density influence an area's natural resources and environmental health, how environmental factors permeate political boundaries, and how environmental issues influence the relationship between the countries. Within this unit, students analyze maps and statistical data to understand how the economy and **infrastructure** in the border region influence the environment and the full range of relations between the United States and Mexico. They also take on the roles of stakeholders in

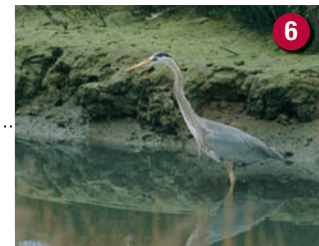
the Rio Grande region presenting their perspectives and concerns at a simulated conference. As a culminating activity, students analyze existing programs and treaties between the two countries aimed at regulating environmental issues. They apply what they have learned about the use and management of natural resources in the region to understand the complexities that arise when making decisions related to the economy and the environment.



From a Different Perspective
Take part in a simulated conference on water quality issues in the Rio Grande watershed.



International Agreements
Examine the environmental provisions of international agreements involving the United States and Mexico.



The Future of the Tijuana River
Discuss efforts to resolve cross-border environmental issues and their influence on U.S.-Mexico relations.

California Connections

The Tijuana River Part 1: A Shared Resource

If you walk along the sand at Imperial Beach, along with gulls and sunbathers you are likely to see bleach bottles, plastic toys, hypodermic needles, tires, oil containers, or even a refrigerator door. You also might see a yellow sign that says *Keep Out! Sewage Contaminated Water. Exposure May Cause Illness.*



The San Diego County Department of Environmental Health closed the beach at the mouth of the Tijuana River for a total of 198 days in 2006. Environmental

problems cross political borders at this special place where land, river, and ocean merge with two socially and economically disparate countries.

The Tijuana River is a trans-boundary watershed, with drainages running across the border between the United States and Mexico. Most of the river flows through Mexico, where it passes the cities of Tecate and Tijuana. It enters the United States 3 miles (4.8 kilometers) before draining into the Pacific Ocean. The river meets the sea at the protected Tijuana River National Estuarine Research Reserve. This diverse ecosystem lies at the junction of terrestrial, freshwater, and marine habitats. The reserve provides refuge for several threatened and endangered species.

Years ago, hiking upstream from the reserve, you might have been able to see dolphins and deer in the same day; however, those mammals are no

longer found in the estuary.

Today, human activities threaten the Tijuana River watershed, which is designated as a biodiversity hotspot and a “Wetland of International Importance.” The area is home to many species with limited distribution or small populations that face immediate threat.

Experts think that Tijuana’s current population of 1.5 million will double by 2020. San Diego’s population will increase by 1.3 million. This rapid growth means that more people will need homes, water, and places to dispose of wastes. Rapid growth is a particular problem for Mexico because it lacks infrastructure like adequate facilities for wastewater.

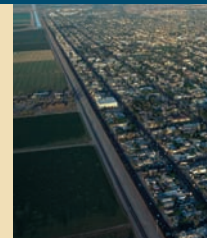
Citizens of both countries move to the border region seeking work. Migration to the region has grown since the mid-1990s, when passage of the North American Free Trade Agreement (NAFTA) allowed the United States and Mexico to trade with limited tariffs. NAFTA led to an explosion in the number of *maquiladoras*—assembly plants. Many of these plants are American-owned factories, operating on the Mexican side of the border. There the owners can take advantage of

Mexico’s lower wages and more abundant labor supply, as well as less stringent enforcement of environmental regulations. Most of the profits from the *maquiladoras* flow back across the border to American and multinational corporations.

Money is not the only thing that flows across the border. The byproducts of manufacturing flow into the river. And, Mexico lacks the infrastructure, funds, and



Surfer on contaminated beach—Imperial Beach, California



environmental regulation to deal effectively with the industrial waste and toxic chemicals dumped on soil and into waterways. These toxins travel downstream, polluting both surface water and groundwater, as well as the coastal waters of the Pacific Ocean. Scientists have detected high levels of heavy metals in the river. As these metals

move through food chains, they accumulate in the tissues of animals, including humans.

The growing need for housing is another problem resulting from economic growth in the region. Many housing developments have been built on crumbling hillsides above the river. Their construction has removed the vegetation that holds the hillsides

in place. When rain falls, water runs off the concrete, rather than soaking into the ground. The resulting volume and velocity of water erode the hillsides and carry the soil into the river. This sediment load pulses into the river with each storm, choking the channel and threatening to bury the estuary in a layer of silt.

Sediment is not the only thing flushed downriver during a storm. Because Tijuana lacks adequate sewage treatment, with each rainstorm a million gallons of raw sewage overflow downstream from Tijuana. This enormous load of organic waste poses a human health problem. The torrents also sweep trash, plastics, and even discarded appliances into the river.

Debris overwhelms the border fence. The drainage gates in Smuggler's Gulch and Goat Canyon are open all the time, allowing the current to carry debris downstream, where it pollutes the estuary, litters the beach, and flows out to sea, causing even more problems. The water and sediment that flows into Goat Canyon is caught by large sedimentation basins at the head of the canyon on the U.S. side. The problems do not stem only from Mexico. Wastewater infrastructure in San Diego is old and in disrepair. Population growth in San Diego further stresses an overburdened system.

Environmental changes on one side of the border do not stay there. The river flows across the international border without regard to municipal infrastructures, and environmental and economic regulations. What enters the river upstream always flows downstream. Because of this, neither Mexico or the United States can solve these problems without working together.



Wastewater Flowing—Los Laureles Canyon, Tijuana, Mexico

California Connections

The Tijuana River

Part 2: Working Together to Find Solutions

In 2003, the mayors of Tecate and Tijuana became board members of the Tijuana River National Estuarine Research Reserve. The group aims to improve relations and management strategies on both sides of the river.



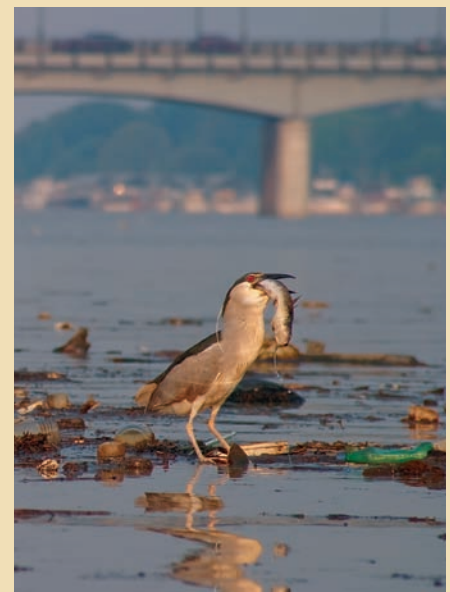
Researchers from both countries monitor water quality and wetland species. They propose ways to restore the health of the estuary. Restoration projects include constructing sedimentation basins that catch sediment and debris, as well as digging sediment from filled marshes and removing non-native plant species that threaten native plant communities. In addition, the Reserve runs a visitor center to educate the public. Representatives of the Reserve also work with Mexican agencies to train teachers on both sides of the border.

In 2006, the City of Tijuana and the State of California worked together to clean up Los Laureles Canyon. The canyon had become home to an unplanned housing development. The Mexican city and California created a sewage treatment plant and helped restore the natural waterway. They also organized riverbank cleanups. The

U.S. Environmental Protection Agency also cooperates with many organizations in both the United States and Mexico to support wastewater projects in the area. The goal of these projects is maintaining the health of the border region. Recently, researchers from Mexican and U.S. universities developed a Tijuana River atlas. This atlas includes maps, photographs, and information about topography, climate, population, and land use in the Tijuana River watershed. Policymakers and planners in both countries can use this atlas to help make decisions. This binational project is a first step toward building communication and partnerships.

Current efforts to better manage the valuable resources of the Tijuana River are taking a “grassroots” approach. This means educating and working with people living in the watershed on both sides of the river. The goal is to give residents a sense of long-term stewardship, to encourage them to accept individual responsibility. Local outreach programs and restoration projects

are underway in San Diego, Tecate, and Tijuana. These programs and projects encourage people to become aware of the issues that affect the river, as well as possible solutions. If the people of the Tijuana River watershed have the knowledge, tools, and support to co-exist with the natural environment, they will be able to make a difference on both sides of the border.



Heron eating fish in polluted river

